

What Is Claimed Is:

1. An interferometric measuring system for measuring, for example, shape deviation, position, surface properties, vibrations, of an object, the measuring system comprising a transmitting element having a modulation interferometer (12) and a radiation source (11) for short-coherent radiation, as well as a measuring probe system (30) connected thereto for supplying the radiation via a common optical path (41), and further comprising a receiving element (15) for analyzing the measuring radiation returning from the measuring probe system, said receiving element (15) being combined with the transmitting element in a transmitter/receiver unit (10), wherein the measuring probe system (30) includes a plurality of measuring probes (32.1, 32.4) coupled to the common optical path (41) via respective optical paths (42); and  
a switching device (20) is disposed at a coupling point between the common optical path (41) and the respective optical paths (24) to the measuring probes (32.1, 32.4), said switching device allowing the different measuring probes (32.1, 32.4) to be individually brought into a bidirectionally transmitting connection with the transmitter/receiver unit (10) for the radiation supplied by the modulation interferometer (12), on the one hand, and the measuring radiation, on the other hand.
2. The system as recited in Claim 1,  
wherein the common optical path (41) and/or the respective optical paths (42) include(s) monomode optical fibers.
3. The system as recited in one of the preceding claims,  
wherein the switching device (20) has manually or automatically switchable control elements.
4. The system as recited in Claim 3,  
wherein electrically, pneumatically, hydraulically, or magnetically operated actuating elements are provided for switching.
5. The system as recited in one of the preceding claims,  
wherein the switching device (20) is controlled via a control device (25) to which is also connected the transmitter/receiver unit (10) for correlating the results to the respective measuring probes (32.1, 32.4) and, possibly, for separate evaluations.

6. The system as recited in one of the preceding claims,  
wherein the measuring probes (32.1, 32.4) are individually assigned or assignable to a  
surface to be measured, form individual measurement channels of a probe unit, are  
arranged in groups in one or a plurality of measuring stations (31, 32, 33, 34 ...), are  
arranged in a higher-level interconnected system of measuring devices, or  
integrated into a combination of such arrangements.
7. The system as recited in one of the preceding claims,  
wherein they are integrated into a control concept of a manufacturing and/or  
inspection process.